DOCUMENT RESUME

ED 229 880 EA 015 670

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TITLE The Job Market for College Graduates, 1960-1990.
INSTITUTION Stanford Univ., Calif. Inst. for Research on Educational Finance and Governance.
SPONS AGENCY National Inst. of Education (ED), Washington, DC.
REPORT NO IFG-P-R-83-A3
PUB DATE Feb 83
GRANT OB-NIE-G-80-0111
NOTE 42p.
AVAILABLE FROM Publications, Institute for Research on Educational Finance and Governance, School of Education, CERAS Building, Stanford, CA 94305 ($2.00).
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *College Graduates; *Education Work Relationship; *Employment Level; *Employment Opportunities; *Employment Patterns; *Employment Projections; Equal Opportunities (Jobs); Income; Labor Force; Labor Market; Labor Needs; Minority Groups; Tables (Data); Underemployment

ABSTRACT

An analysis based on U.S. census data of labor market opportunities for young, inexperienced college graduates (out of school less than five years) over the last three decades and projected into the next reveals significant trends. These opportunities are measured by types of jobs held and relative earnings. Comparisons of government figures on actual and projected growth in educational attainments and in employment show that during the 1960s college graduates increased their chances of finding high-level jobs. But during the 1970s opportunities deteriorated rapidly; job opportunities in the 1980s will be more like the 1950s and 1970s than the 1960s. Black college graduates' earnings relative to those of their white counterparts improved slightly over the last two decades. White female college graduates experienced no such improvement. Female and minority college graduates still earn less than white male high school graduates. While the educational attainments of U.S. workers continue to increase, employment growth in the 1980s will not produce widespread opportunities in high-level fields. College graduates may continue to hold an advantage in the labor market, but increasing numbers will have to accept jobs incommensurate with their training. Twelve tables include information on employment growth, earnings, and educational attainments. (PB)

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EA 015 670

Project Report No. 83-A3

THE JOB MARKET FOR COLLEGE GRADUATES, 1960-1990

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February 1983

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The research for this paper was supported by funds from the National Institute of Education (Grant No. OB-NIE-G-80-0111). The analyses and conclusions do not necessarily reflect the views or policies of this organization.

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Abstract

This paper examines changes in labor market opportunities for young college graduates over the last two decades. The analysis is based on U.S. Census data for the years 1960, 1970, and 1980. Labor market opportunities are measured by the types of jobs held by college graduates and their relative earnings. Government projections of educational attainments and employment for 1990 are also used to speculate on future opportunities for college graduates. The findings support the common observation that labor market opportunities for college graduates declined from the 1960s to the 1970s, at least in terms of the types of jobs secured. But comparisons with earlier periods reveal that the 1960s were atypical; graduates in that period enjoyed better opportunities than graduates either before or after.

Acknowledgments

I would like to thank Gail Meister and Deborah Thresher for their research assistance, and Stephanie Evans for her secretarial assistance.

During the last two decades the United States witnessed a major expansion of higher education. The expansion was due, in part, to the large number of children from the baby-boom reaching the traditional college-going age. It was also due to an increasing proportion of adults and college-age youth participating in higher education. These two trends greatly raised the average education level of the American population. And they greatly increased the proportion of college graduates in the U.S. labor force. But did the growth in labor market opportunities keep pace with the growth in educational attainments over this period? Most recent attempts to answer this question have focused on a fairly short period of time, most frequently comparing the situation in the 1960s with the situation in the 1970s. This paper examines a longer interval, looking backward over the period from 1960 to 1980 as well as looking forward to the period from 1980 to 1990.

The rapid expansion of higher education during the last two decades has been accompanied by a growing interest in documenting the economic benefits of higher education. Most of this attention has focused on the higher earnings associated with advanced schooling. Since the 1960s, a large number of studies have documented that college graduates receive higher earnings in the labor market than workers with less schooling (Becker 1964; Mincer 1974). Moreover, the economic benefits tend to increase over the lifecycle, resulting in a private rate of return to investment in schooling that compares favorably to other investment activities.

Other studies have shown that society, too, benefits from expanded higher education. Social rates of return generally appear to compare well with private rates of return (Hines, Tweeten, and Redfern 1970). Higher education has contributed substantially to rapid economic

growth in the United States during the last 50 years (Denison 1979). Supporters of higher education have also pointed out the many social benefits that accrue outside of the economy, but that are no less important to the social welfare of the country (Bowen 1980).

While the rapid expansion of higher education in the 1960s was accompanied by steady and rapid economic growth, continued expansion of higher education in the 1970s was accompanied by much more uneven economic growth. Critics began to question the economic benefits of higher education. They found that the earnings of college graduates relative to high school graduates declined from the late 1960s to the middle 1970s (Freeman 1976). Labor market opportunities for new college graduates appeared to decline particularly during the recession years of 1975 and 1976, leading to a more widespread pessimism about the economic payoff to college (Bird 1975).

The notion that the relative earnings of college graduates had declined in the 1970s did not go unchallenged. Other observers pointed out that relative earnings appeared to vary from year to year, but that over a period of ten years or more they had not changed substantially (Smith and Welch 1978). More pronounced changes in relative earnings were experienced by college graduates majoring in particular fields of study, however (Rumberger in press). Further, the large number of young people entering the labor market during this period depressed their earnings relative to older workers, regardless of their education level (Freeman 1979; Welch 1979).

Not all the attention on labor market opportunities for college graduates has focused on earnings. College graduates also enjoy other, nonpecuniary labor market benefits from their education (Duncan 1976; Lucas 1977). In relative terms, college graduates are better able to compete for the highest level, most prestigious jobs in the economy compared to their less educated counterparts (Blau and Duncan 1967). But how have the labor market opportunities of college graduates changed in more absolute terms?

Some scholars have addressed this question by comparing the educational attainments of workers with the level of education (skills) required to perform their jobs. While college graduates may continue to hold a competitive advantage in the labor market, they still may be forced to accept lower skilled jobs over time as their numbers increase (Thurow 1975). Even prior to 1960, some critics argued that the educational attainments of the U. S. labor force produced skill levels in excess of those needed for many jobs in the economy (Berg 1970; Rawlins and Ulman 1974). Subsequent analyses suggested that the condition was simply exacerbated by the rapid expansion of higher education that followed (Berg, Freedman, and Freeman 1978; Rumberger 1981a).

Overall, observers are engaged in an on-going debate concerning changes in the labor market opportunities for college graduates. Some have argued that college graduates continue to hold an economic advantage in the labor market in terms of relative earnings, although the advantage has eroded during the last decade. Others claim that relative earnings over a longer period have changed very little. Still others claim that, regardless of whether relative earnings have changed, an increasing proportion of college graduates have been forced to accept jobs incommensurate with their level of schooling.

The purpose of this paper is to contribute to this debate. The present analysis differs from most recent studies by examining labor market opportunities for college graduates over a longer period of time, specifically the years 1960, 1970, and 1980. This time horizon allows comparisons among college graduates who entered the labor market in the 1950s, before the rapid expansion of higher education, those who entered in the prosperous 1960s, and those who entered during the boom and bust decade of the 1970s. These three decades will also be compared with the projected situation for 1990. Thus, the entire analysis covers four decades and permits a longer range view than many other studies. Labor market opportunities will be measured by relative earnings and by types of jobs. The changing situation for all college graduates will be

examined, then the situation for graduates of different race and sex groups.

Most of the analysis is based on U.S. Census data for the years 1960, 1970, and 1980. The data for 1960 and 1970 come from the Public Use Samples; the data for 1980 come from the March 1980 Current Population Survey.[1] These data sources contain comprehensive information on characteristics of the U.S. civilian population, including educational attainment, employment status, employment characteristics (occupation, industry, and sector), and earnings.

Educational Expansion and Employment Growth, 1960-1980

Labor market opportunities for college graduates depend both on the number of college graduates who are competing for jobs in the labor market and on the number and types of jobs that are available. Before examining changes in labor market opportunities, I will briefly document the growth in educational attainments and the growth in employment.[2]

Educational Attainments

The expansion of education that took place during the last two decades was nothing short of phenomenal. Between 1960 and 1970 enrollments in higher education increased from 3.8 million to over 8.5 million, an increase of over 100 percent (Table 1). Between 1970 and 1980 enrollments increased another 41 percent to reach 12.1 million.

Growth rates varied by age, race, and sex groups. Although the traditional college age population of 18 to 24 year olds continued t comprise the majority of college students, the proportion of students 25 years and older grew even more rapidly. By 1980 they comprised 38 percent of total enrollments. The number of white males enrolled in college more than doubled during this period, with most of the increases taking place in the 1960s. In contrast, the number of white females and minorities enrolled in college increased between 300 and 700 percent over these two decades, with substantial increases occurring in both decades. Even in 1980, however, minorities are still less likely than

whites to attend college (Huddleston 1982, p. 132).

The expansion of higher education greatly increased the educational attainments of the U.S. labor force. Between 1960 and 1980 the number of college graduates in the civilian labor force increased threefold. By 1980 almost one out of five workers had completed 4 or more years of college. Among young workers, 25 to 34 years of age, increases were even greater. By 1980, more than one-quarter of all young workers in the civilian labor force had at least a 4-year college degree. A college degree was no longer a rare commodity, insuring its holder of clear competitive advantage in the labor market. In a relatively short period--20 years--higher education became much more common.

Employment Opportunities

The economy, too, underwent significant changes from 1960 to 1980. The Gross National Product, in real terms, increased almost 50 percent from 1960 to 1970. Between 1970 and 1980 it increased another 36 percent, although growth was much more uneven (U.S. President 1982, p. 234). Employment grew as well, but at a much slower rate. Total employment grew from 63 million in 1960 to 76 million in 1970, an increase of 20 percent. It increased another 26 percent in the next decade, reaching 96 million in 1980 (Table 2).

What types of jobs were created by this employment growth? One way to answer this question is to examine employment growth within the major occupational groups defined by the U.S. Census Bureau. Employment has remained widely distributed among these major groups over the last two decades (Table 2). The majority of workers work in "white-collar" occupations: professional and technical, managerial, sales, and clerical workers. About one-third work in "blue-collar" occupations: crafts, operatives, and laborers. The remainder work in farm and service occupations.

Employment growth was quite uneven among these groups. Table 2 shows how the net growth in employment over the two decades is distributed over the major occupational groups. Professional and

clerical occupations accounted for over 50 percent of the total employment growth, with managerial and service jobs accounting for another third. The remainder was spread over the other groups.

The problem with using Census occupational groups is that they reveal very little about the actual characteristics of jobs that exist in the economy. The job classifications are based merely on titles.[3] Professional and technical jobs, for example, include health technicians and actors as well as physicians and engineers--jobs that vary widely in prestige, pay, and skills.

In order to provide a more meaningful comparison among jobs, I reclassified Census occupations based on the level of skills required to perform the job. The procedure uses information from the Dictionary of Occupational Titles on the skill requirements of jobs in the U.S. economy (Rumberger and Carnoy 1980). While this scheme is not the only one that could be used to differentiate among jobs, it does provide a useful way to distinguish between good jobs and bad jobs, high-paying jobs and low-paying jobs, high-skilled jobs and low-skilled jobs.

Based on this scheme, most jobs fall in the middle of the occupational hierarchy, a little over one-quarter comprise high-level jobs, and about one-sixth comprise low-level jobs (Table 2). Employment growth between 1960 and 1980 favored middle and high-level jobs; 2 out of 5 new jobs created in this period were in high-level areas, another 2 out of 5 were in middle-level areas, and 1 out of 5 were in low-level areas. The expansion of the economy during this period increased employment at all levels of the job hierarchy.

The amount and type of occupational growth that took place during the last 20 years was due to the growth of various sectors of the economy. Most jobs are found in the private sector, which is comprised of several major industrial groups (Table 3). Three major industries--manufacturing, wholesale and retail trade, and services--account for three-fourths of all private sector employment. These three industrial groups also accounted for the majority of employment growth over the last decades. Recent research has also shown that most new jobs have

been created by small firms (Greene 1982).

During the last two decades the public sector has become an important source of employment. Between 1960 and 1970 the public sector accounted for over one-third of all new jobs in the U.S. economy. Over the last 20 years it has accounted for fully 25 percent of employment growth. By 1980 one-sixth of all workers were employed in the public sector. Equally important, the public sector has become an important source of jobs for women, minorities, and college graduates (Rumberger 1982).

Finally, self-employment has become a less important source of jobs in our economy over this period. The proportion of workers who were self-employed declined from 12 percent in 1960 to less than 9 percent in 1980. Virtually no new jobs were created in this sector of the economy over the last 20 years.

Each sector of the economy not only accounts for a certain amount of employment, but also different types of jobs. Wholesale and retail trade industries largely employ managers, sales workers, and clerical staff; manufacturing industries primarily employ craft workers and operatives; and the public sector largely employs professional, technical, and clerical workers.

Since college graduates are most likely to hold high-level jobs, it is particularly useful to see which sectors of the economy generate these types of jobs. The private sector accounts for over 50 percent of all high-level jobs in the economy, primarily within manufacturing, wholesale and retail trade, finance, and service industries (Table 4). The public sector, which only employs one-sixth of the workforce, accounts for one-quarter of all high-level jobs. Self-employment accounts for the remaining one-sixth. The public sector and the private service sector together accounted for 50 percent of the growth in high-level jobs over the last two decades. Many of the jobs in the private service sector are generated from government spending on social welfare programs (Brown and Erie 1982). During the 1960s the public sector was the primary source of new, high-level jobs, while the number

of self-employed holding high-level positions declined appreciably.

These figures reveal the changing distribution of jobs in the U.S. economy. However, they do not reveal whether the characteristics of individual jobs have changed over this period, particularly whether the tasks and skill content of jobs have changed. Many people believe that the tasks of at least some jobs will get more complex over time because of the influence of technology. These jobs will require higher level skills, skills developed by more advanced schooling. Yet others have challenged this view, arguing that many job tasks become fragmented over time, reducing requisite job skills (Braverman 1974). Although empirical evidence to support either view is sparse, recent research suggests that skill content of individual occupations has changed very little over the last decade or two (Rumberger 1981b). Shifts in employment favoring high-skilled occupations have raised the average skill level of jobs in the economy, although much less than many people imagine.

Overall, employment grew only half as fast as the economy over the last 20 years. Growth rates varied widely among sectors and industries, with the private service sector and the public sector accounting for more than half of all new jobs between 1960 and 1980. This growth favored the creation of middle-level and high-level jobs. The public sector was particularly instrumental in creating new high-level jobs, both through direct employment and through military and social welfare spending in the private sector (Carnoy, Rumberger, Shearer forthcoming, Chapter 5).

Changing Opportunities for College Graduates, 1960-1980

The growth in educational attainments of the U.S. labor force during the last two decades was much more rapid than the growth in high-level, professional jobs. How did these differential growth rates affect the employment opportunities for new college graduates?

To answer this question, I will document the employment situation for young, inexperienced workers--specifically workers who have been out of school no more than five years.[4] This will permit comparisons

among workers with different educational attainments who have been in the labor market a similar period of time. Comparing workers of the same age is less preferable because workers with less education have more labor market experience than more educated workers, and labor market opportunities (such as earnings) increase rapidly during workers' initial years in the labor market.

This analysis will focus on the employment situation for young inexperienced workers in 1960, 1970, and 1980, focusing on the experiences of college graduates. Young college graduates in 1960 finished their schooling in the latter part of the 1950s; those in 1970 finished their schooling in the latter part of the 1960s; and those in 1980 finished their schooling in the latter part of the 1970s. Graduates from these three decades most likely faced quite different labor market situations. For instance, there were many more graduates competing for jobs in 1980 than in the previous two decades. The analysis will first focus on the situation for college graduates as a whole; then it will contrast the situation for graduates of different race and sex groups.

College Graduates in the Labor Market

Jobs. College graduates hold a competitive edge in the labor market. They are more likely to find high-level, professional jobs than workers with less education: more specifically, college graduates were 10 times as likely to hold high-level jobs as high school graduates in 1960 (Table 5). And college graduates have maintained this relative advantage over the last two decades.

Yet not all college graduates secure high-level jobs. Even in 1960 only two-thirds of 4-year college graduates (those with exactly 4 years of college) were employed in professional and managerial occupations. Based on the skill levels of occupations, a similar proportion were employed in high-level positions.[5] The remainder were employed in lower-level occupations, such as secretaries and service workers, where a college education is hardly necessary and may even be detrimental to

satisfactory work performance (Berg 1970; Rumberger 1981a, Chapter 5). Thus even before the rapid expansion of higher education in the 1960s, not all graduates were assured of finding high-level jobs, an observation that others have made previously (Berg 1970; Rawlins and Ulman 1974).

The employment situation for college graduates improved during the 1960s. By 1970 almost 3 out of four college graduates were holding high-level jobs. The expansion of the private service sector and the public sector enabled an increasing proportion of young college graduates to find jobs in these two areas during the 1960s (Table 6). And since these two sectors offer relatively more high-level jobs than other private sector industries, opportunities for high-level jobs grew during this period.

While employment opportunities for college graduates continued to increase in the private service sector during the 1970s, opportunities in the public sector declined drastically. Almost half of all young college graduates were employed in the public sector in 1970; this proportion declined to one-quarter ten years later. As a result, more college graduates had to look for jobs in the private sector. Except for the service industries, private sector firms offer fewer high-level job opportunities than the public sector. Thus high-level job opportunities for young college graduates in 1980 were markedly lower than in 1970 and even lower than in 1960. Professional employment opportunities declined most particularly, although this decline was partially offset by a growth in managerial positions. In some respects the 1960s appears to be an anomaly: new college graduates entering the labor market during that period found better jobs than graduates found either before or after that period.

Earnings. Earnings provide another measure of labor market opportunities. In this case, opportunities are measured in relative terms, by comparing the earnings of college graduates relative to the earnings of high school graduates. Did the relative earnings of college graduates change during the last 20 years?

That question has sparked considerable debate. Many people believe that the relative earnings of college graduates--the basis for computing the rate of return to investment in higher education--declined during the 1970s (Freeman 1976, 1980). Others have questioned this belief (Schwartz and Thorton 1980; Wachter 1980). The relative earnings of college graduates actually appear to vary somewhat from year to year; yet over a ten year period--from the mid 1960s to the mid 1970s--they changed very little (Smith and Welch 1978).

The present analysis focuses on an even longer period--20 years. Table 7 shows the total annual earnings for all inexperienced workers in the civilian labor force in 1960, 1970, and 1980 by education level. In order to capture the effects of unemployment, which varies widely among education groups, both the employed and unemployed are included in the calculations. Thus the figures represent the expected earnings of workers in the labor market (Levin 1978, Rumberger in press).

The figures support the common observation that workers with more education receive higher earnings than workers with less schooling. The amount of this advantage is revealed in earnings ratios between education groups. In 1960, workers who completed 4 years of college earned 65 percent more than workers who completed high school, whereas workers who completed only 1 to 3 years of college earned essentially the same as high school graduates. Thus, a college education appears to provide higher earnings only after completing 4 or more years.

Over the last 20 years the relative earnings of 4-year college graduates changed very little, declining a mere 7 percentage points. Most of this decrease occurred during the 1960s. These figures support the view that the relative earnings of college graduates over the long-run have remained stable.

The relative earnings advantage of college graduates depends on the occupations and industries where they find employment. College graduates in professional and managerial jobs earn relatively more than graduates in clerical jobs; graduates employed in manufacturing industries earn more than those employed in other sectors of the economy

(Table 8). In some cases these relative advantages have changed over time: graduates employed in managerial jobs in 1970 earned relatively more than graduates in managerial jobs earned in 1980 as did college graduates employed by the federal government.

Relative earnings overall remained stable during this period because of a series of offsetting shifts in employment. Between 1960 and 1970 a decreasing proportion of new college graduates found work in manufacturing industries, which tended to reduce the overall earnings of college graduates relative to high school graduates. A decreasing proportion of graduates working in sales as well as a declining relative earnings advantage associated with sales occupations also served to lower the relative earnings of all college graduates. Between 1970 and 1980 an increasing proportion of graduates entered jobs in manufacturing industries, tending to increase the average earnings advantage of all college graduates. In addition, an increasing proportion of college graduates accepted clerical positions, which tended to decrease the relative earnings of all college graduates.

Race and Sex Differences in Employment Opportunities

Compared to white males, women and minorities have always been in a relatively disadvantaged position in the labor market. They hold fewer high-level jobs and receive lower earnings than white males. At least part of this discrepancy can be explained by differences in educational attainment: women and minorities generally complete less education than white males and thus are at a competitive disadvantage in the labor market. But how do women and minority college graduates fare in the labor market compared to white male graduates--workers with the same level of education? And how has their status changed over the last two decades?

Unfortunately, the Census data used in the present analysis limits our ability to answer these questions. The number of minorities, and particularly minority college graduates, are so small that statistically meaningful comparisons over the three years are impossible. However,

the data will allow a comparison between inexperienced white male and female college graduates. I will then use published figures to make comparisons between all male and female, white and black college graduates. While the latter comparisons will not reveal the labor market situation for new, inexperienced college graduates, they will indicate how the situation for all college graduates in these groups has changed over time.

Inexperienced white college graduates. White men and women college graduates experienced similar changes in employment opportunities between 1960 and 1980 (Table 9). The proportion of graduates from both groups employed in high-level and professional occupations increased during the 1960s and declined during the 1970s. In general, female college graduates are more likely to find employment in professional and clerical occupations, while male college graduates are more likely to find employment in managerial and sales occupations. But the situation for these two groups differs much more than these figures suggest.

The majority of female college graduates, until recently, have entered teaching and health professions. In 1960, for example, 62 percent of all young female college graduates were employed in these two areas, with 50 percent employed in teaching alone (U.S. Bureau of the Census 1963, Table 11). There were few high-level jobs for women in other professional areas and even fewer in nonprofessional occupations. Other female college graduates had to settle for lower-level jobs: 18 percent took clerical jobs.

Teaching opportunities for female college graduates improved during the 1960s. The growth in the school age population and the growing government support of education increased the number of teaching positions by 50 percent (U.S. Bureau of the Census 1982, p. 146). Yet the proportion of young women employed in all professional occupations changed very little over this period. An increasing proportion of women found high-level jobs in other areas, however, decreasing the proportion employed in clerical jobs. Men experienced less change in opportunities

during this period, although opportunities within the professional area no doubt changed.

During the 1970s both groups experienced declining opportunities, particularly in professional occupations. Women especially were hurt by the small growth in the number of teaching positions during this period. Although an increasing proportion found jobs in managerial and sales positions, others were forced to accept clerical jobs. By 1980 a greater proportion of young female college graduates were working in clerical jobs than 20 years earlier. While the 1960s had improved opportunities for women, declining opportunities in the 1970s all but eliminated those gains. Overall, female college graduates in 1980 were worse off than graduates in 1960.

Men experienced a similar but less severe decrement in opportunities. Declining professional opportunities were partially offset by increasing opportunities in managerial positions. Yet by 1980, one of out of five young college graduates was employed in other than "white-collar" occupations.

While employment opportunities for white male and female college graduates moved in a similar direction, relative earnings did not: earnings of college graduates relative to high school graduates declined for males, but increased for females. For both groups the biggest change occurred in the 1960s. But, overall, changes were modest.

All college graduates. In general, changes in the labor market opportunities of all college graduates were similar to the the changes experienced by young graduates. But there were distinct differences in these changes among race and sex groups, particularly between males and females.

The majority of both white and black male college graduates continued to hold professional level jobs over the last two decades (Table 10). But blacks are much more likely to hold teaching jobs than whites. Blacks' dependence on teaching opportunities probably accounts for their relatively larger drop in professional employment opportunities between 1970 and 1980. Male college graduates, especially

blacks, have found an increasing number of managerial jobs over the last two decades. The remainder have found jobs in sales, clerical, and other areas.

Because so many women college graduates go into teaching, they are more likely than men to hold professional jobs. Black female college graduates, even more than whites, have depended on teaching as a means of securing professional level employment. Both white and black women suffered from the declining opportunities in teaching during the 1970s. While an increasing number of female college graduates have moved into managerial and sales occupations over the last two decades, they have moved increasingly into clerical jobs as well. Today both white and black women college graduates remain more likely to hold professional and clerical jobs, while white and black males remain more likely to hold managerial and sales jobs.

All four groups appeared to gain from growing employment opportunities in the 1960s and lose from declining opportunities in the 1970s. But women appeared to lose more than men.

Relative earnings tell a different story. Within most race and sex groups, average earnings of college graduates relative to high school graduates did not change appreciably over the last two decades. For white women, relative earnings of all college graduates 25 years old and over increased during this period, which is similar to the improvement noted in Table 9 for inexperienced graduates. For white men, relative earnings of all college graduates did not change over this period, while relative earnings for inexperienced workers declined somewhat (based on the figures in Table 9). Differences in these trends for white males might be explained by changes in the earnings of older workers relative to younger workers as well as changes in the relative earnings among education groups (Welch 1979; Freeman 1979). These differences also question the widespread belief that the relative earnings of white male college graduates have declined, at least over the longer run.

The earnings of college graduates vary widely among race and sex groups: white male college graduates earn substantially more than white

female or black college graduates. The average earnings of black college graduates relative to white male college graduates did improve slightly over the the last two decades. White female college graduates experienced no such improvement. Despite the improvements experienced by blacks, female and minority college graduates still earn less than white male high school graduates, even among year-round, full-time workers (U.S. Bureau of the Census 1982, Table 51).

In summary, employment opportunities for college graduates have changed over the last 20 years, but not exactly the way most people imagine. Comparisons between the late 1960s and the late 1970s, which have been done frequently in the literature (e.g., U.S. Bureau of Labor Statistics 1980), show a rather dramatic deterioration in opportunities. What these short-term comparisons fail to show is that between the late 1950s and the late 1960s opportunities improved. While some permanent shifts did take place, many of the gains made in the 1960s were erased during the 1970s, especially for women. In 1980 labor market opportunities for young college graduates were not very different than they were in 1960. The profitability of a college degree, as measured by relative earnings, also did not change that much over the period, contrary to what many people believe. Relative earnings increased somewhat for black males and females, but not for white males and females. Black college graduates also improved their earnings relative to white males, while white females did not.

Changing Opportunities, 1980-1990

Employment opportunities for inexperienced college graduates increased during the 1960s, but declined during the 1970s. What does the situation for the 1980s look like? Will it resemble the 1960s, with growing opportunities, or the 1970s, with shrinking opportunities? To answer this question, I will compare government projections of educational attainments with projections of employment and then speculate about the situation for new college graduates in the next decade.

The government projects that total enrollments in higher education will remain steady at about 12 million students between 1980 and 1990 (Huddleston 1982, p. 128). Enrollments for 18-24 year olds are projected to decline, however, in part because that age cohort will be smaller in the 1980s than the baby-boom cohort that attended college in the 1960s and 1970s. These declines will be offset by increasing enrollments among adults 25 years old and over.

While enrollments in higher education will remain steady, the educational attainments of the U.S. workforce will continue to increase. As older, less-educated workers retire from the labor force, they will be replaced by younger, more-educated workers. The exact increase in educational attainments is difficult to estimate, since the government last projected educational attainments for the U.S. labor force in 1973. Comparing projections for 1980 with actual figures suggests that the government's projections for 1990 will also be low. For example, the U.S. Bureau of Labor Statistics projected that 18.5 percent of the civilian labor force would have completed 4 or more years of college by 1980, while 22 percent actually completed that amount (Table 11). Figures for young workers show similar discrepancies. These differences suggest that more than a quarter of the mature civilian labor force and close to a third of all young workers will have completed college by 1990.

Growth in employment opportunities is more difficult to project because it depends on economic indicators--growth in Gross National Product, inflation, productivity--as well as demographic trends--growth in the population and labor force participation rates. Acknowledging this complexity, the U.S. Bureau of Labor Statistics publishes three sets of projections, each based on different assumptions. I will report the figures from the most conservative projections, assuming modest increases in production and productivity and continued inflation. The trends will not differ greatly using more optimistic projections.

Employment is projected to increase by 22 million between 1978 and 1990 (Table 12). Projected employment growth within occupational groups

suggests that the growth in high-level, professional opportunities will be lower than in either of the two previous decades. Whereas 36 percent of employment growth between 1960 and 1970 took place in professional and managerial occupations and 45 percent between 1970 and 1980 (see Table 2), only 28 percent of employment growth is projected to take place in these two areas between 1980 and 1990 . Clerical and service occupations will account for 40 percent of the employment growth, about the same growth that took place between 1960 and 1980. The remaining third of new jobs will come in the other occupational groups.

These figures paint a much less optimistic picture of future employment opportunities than frequently appears in the mass media, where the belief is propagated that high-technology will foster the growth of jobs in technically related areas. Only in relative terms--the proportional increase in the number of jobs in such areas--is that an accurate picture. In these terms, the fastest growing jobs in the economy are projected to be: data processing machine mechanics, paralegal personnel, computer systems analysts, and computer operators (Carey 1981, p. 48). But in absolute terms, the greatest increase in employment will take place in quite different occupations: janitors, nurses aids and orderlies, sales clerks, and cashiers. To put it another way, there will be 3 times as many new jobs for janitors as jobs for computer systems analysts between 1978 and 1990, and there will be 13 times as many jobs for waiters and waitresses as jobs for aeronautical engineers. The only job category that is projected to grow in relative as well as absolute terms is food preparation and service workers in fast food restaurants. Employment in that occupation is projected to increase 69 percent, or by 500,000 workers.

Projections of educational attainments and employment suggest that labor market opportunities for college graduates will continue to decline in the 1980s. Although educational attainments will not rise as rapidly as they did in the 1970s, employment opportunities in high-level occupations will increase much more slowly than they did in the 1970s. Over a three decade period, from the 1950s to the 1970s, college

graduates in the 1960s experienced the most favorable labor market opportunities. Projections for the 1980s further suggest that the 1960s were unique, affording graduates in that period better opportunities than those enjoyed by graduates before or after.

Summary and Conclusions

This paper has viewed changing employment opportunities for college graduates in the U.S. labor market over a long period, looking backward over the last three decades and looking forward into the next. The actual and projected growth in educational attainments was first compared with the growth in employment. Discrepancies in these measures of supply and demand were then used to analyze the changing labor market opportunities for college graduates between 1960 and 1990. Labor market opportunities were measured by types of jobs and by relative earnings.

Most of the analysis focused on the changing opportunities for young, inexperienced college graduates, those out of school less than five years. It also focused on graduates with exactly 4 years of college, the group that appears to have undergone the most significant changes in labor market status. While race and sex differences were noted in the analysis, the limitations of Census data precluded noting differences among college graduates of different majors. The labor market experiences of college graduates varies widely by college major, with graduates in fine arts and social sciences generally finding poorer opportunities than graduates in engineering and business (Metz and Hammer 1981; Rumberger in press). Despite this limitation, the analysis revealed several significant trends.

Between 1960 and 1980 the educational attainments of the U.S. labor force grew phenomenally. The number of persons with 4 or more years of college increased 200 percent. By 1980 almost one out of five workers had completed a college degree and more than one out of four young workers had acquired that much education. Employment in professional, high-level occupations also grew rapidly during this period, but could not keep pace with the growth in educational attainments.

Even before the rapid expansion of higher education, not all college graduates were assured of high-level jobs: a third were employed outside professional and managerial occupations in 1960. During the 1960s, despite their growing numbers, young college graduates increased their chances of finding high-level jobs. The decade was a golden era for college graduates. But during the 1970s opportunities deteriorated greatly. By 1980 the situation for new college graduates was similar to the situation for new college graduates in 1960. The rise and fall in opportunities was especially pronounced among women, who were much more dependent than men on changing opportunities in the teaching profession.

Despite the worsening job situation for new college graduates, their relative earnings remained favorable. That is, college graduates continued to maintain an earnings advantage over high school graduates. Young white males did suffer some decline over this period, however.

The outlook for the 1980s also appears bleak. Educational attainments of the U.S. work force will continue to increase, largely because older, less-educated workers will be replaced by younger, more-educated workers. Employment growth will not produce widespread opportunities in high-level, high-technology fields, contrary to conventional beliefs. In fact, employment growth in professional and managerial occupations will be smaller than in either the 1960s or the 1970s. College graduates may continue to hold a competitive advantage in the labor market, but an increasing number will be forced to accept jobs incommensurate with their level of training.

In looking at the entire 40 year period, college graduates in the 1960s enjoyed more favorable employment prospects than graduates either before or after. Not only did opportunities fall between the 1960s and the 1970s, as many observers have pointed out, but they had increased from the 1950s to the 1960s. The 1960s thus appear to be atypical. And it appears that opportunities for college graduates in the 1980s will be more like the 1950s and 1970s than the 1960s.

Notes

[1]The estimates produced from these data differ slightly from published figures because 1) published figures are based on yearly averages, and 2) the present estimates exclude persons working without pay (less than one million workers).

[2]Employment growth actually accounts for less than half of the total number of job openings; the remainder comes from the replacement of workers who die or retire (U.S. Bureau of Labor Statistics 1980). In general, however, employment growth in particular occupations is proportional to the total number of job openings.

[3]The old Census classification system will soon be replaced by a new system that more accurately reflects the content of jobs (Bregger 1982).

[4]Experience can only be estimated from Census data using the common formula: Age - Years of Schooling - 6.

[5]The grouping of occupations by skill requirements is not meant to be strictly comparable with education levels. In other words, college graduates in high-level occupations are not necessarily employed in jobs commensurate with their level of education, while college graduates in middle and low-level jobs are underemployed. Yet such comparisons do provide a basis for suggesting that some proportion of college graduates accept jobs incommensurate with their level of training.

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Table 1

Enrollment in Higher Education and Educational Attainments of Workers by Age, Race, and Sex: 1960, 1970, 1980

	1960	1970	1980
Enrollment in higher education[a] (thousands)			
Total	3,789	8,581	12,097
18-24 years old	2,598	5,805	7,226
25-34 years old	750	1,349	2,703
White males	2,214	4,066	4,438
White females	1,128	2,693	4,437
Nonwhite males	125	335	659[b]
Nonwhite females	102	319	791[b]
Civilian labor force with 4 or more years of schooling[c]			
All workers (thousands)	6,200	10,027	18,781
Workers 25-34 years old	1,897	2,949	7,360
All workers (percent)	9.7	12.9	18.2
Workers 25-34 years old	13.4	17.7	26.5
White males	16.1	20.5	30.5
White females	10.9	17.4	26.5
Black males	4.9	6.2	12.9
Black females	8.1	7.5	15.6
Hispanic males	4.8	7.1	9.0
Hispanic females	2.4	9.2	10.8

[a]Total enrollment includes students of all ages. Enrollment breakdowns include students 14 to 34 years old, enrolled for degree-credit.

[b]Includes black and Spanish origin only.

Sources: Enrollment - Golladay (1977, p. 177), Huddleston (1982, p. 128), U.S. Bureau of the Census, Current Population Reports, Series P-20, No. 110, Table 5; No. 222, Table 1; and No. 362, Tables 1 and 4. Labor force - calculated from the 1960 and 1970 1/1000 Public Use Samples and the March 1980 Current Population Survey, U.S. Bureau of the Census.

Table 2

Employment and Employment Growth by Occupational Group and Level: 1960, 1970, 1980

	Employment (thousands)			Employment Growth (percentage distribution)		
	1960	1970	1980	1960-70	1970-80	1960-80
Occupational groups						
Professional	7,710	11,362	15,799	30.0	22.3	25.2
Managerial	5,542	6,274	10,794	6.0	22.7	16.4
Sales	4,712	5,417	5,927	5.8	2.6	3.8
Clerical	9,640	13,650	17,833	32.9	21.0	25.5
Crafts	9,120	10,483	12,373	11.2	9.5	10.1
Operatives	12,469	13,384	13,737	7.5	1.8	4.0
Laborers	3,210	3,296	4,250	.7	4.8	3.2
Farm workers	3,993	2,228	2,189	-14.5	- .2	- 5.6
Service	7,359	9,844	12,923	20.4	15.5	17.3
Occupational levels						
High	15,285	18,750	27,343	28.4	43.3	37.8
Middle	38,532	43,380	51,945	39.8	43.2	42.0
Low	9,938	13,808	16,537	31.8	13.8	20.6
TOTAL	63,755	75,938	95,825	100	100	100

Note: Includes all employed workers, 16 years old and over, except those working without pay.

Sources: Calculated from the 1960 and 1970 1/1000 Public Use Samples and the March 1980 Current Population Survey, U.S. Bureau of the Census.

Table 3

Employment and Employment Growth by Sector and Industrial Group: 1960, 1970, 1980

	Employment (thousands)			Employment Growth (percentage distribution)		
	1960	1970	1980	1960-70	1970-80	1960-80
Private sector	47,942	56,495	71,649	70.2	76.2	73.9
Agriculture	1,506	1,079	1,225	- 3.5	0.7	0.9
Mining	661	551	821	- .9	1.4	0.5
Construction	2,813	3,231	4,116	3.4	4.5	4.1
Manufacturing	17,636	18,895	21,308	10.3	12.1	11.4
Transportation	3,992	4,385	5,215	3.2	4.2	3.8
Wholesale and retail trade	10,013	13,333	17,481	27.3	20.9	23.3
Finance, insurance, real estate	2,557	3,358	5,160	6.6	9.1	8.1
Services	8,764	11,663	16,323	23.8	23.4	23.6
Public sector	7,860	12,462	15,935	37.8	17.5	25.2
Federal	a	3,223	4,161	a	4.7	a
State	a	3,092	3,403	a	1.6	a
Local	a	6,147	8,371	a	11.2	a
Self-employed	7,953	6,981	8,241	- 8.0	6.3	0.9
TOTAL	63,755	75,938	95,825	100.0	100.0	100.0

[a]Information not available.

Note: Includes all employed workers, 16 years old and over, except those working without pay.

Sources: Calculated from the 1960 and 1970 1/1000 Public Use Samples and the March 1980 Current Population Survey, U.S. Bureau of the Census.

Table 4

Employment and Employment Growth in High-level Occupations by Sector and Industrial Group: 1960, 1970, 1980

	Employment (percentage distribution)			Employment Growth (percentage distribution)		
	1960	1970	1980	1960-70	1970-80	1960-80
Private sector	44.6	51.1	59.1	79.6	76.8	77.6
Agriculture	.5	.5	.5	.3	.5	.4
Mining	.4	.5	.5	.8	.6	.6
Construction	1.2	2.6	2.0	2.9	3.0	2.9
Manufacturing	10.5	12.4	12.9	20.9	13.8	15.8
Transportation	3.5	3.4	3.9	2.8	5.1	4.4
Wholesale and retail trade	8.1	8.8	11.7	12.2	17.9	16.3
Finance, insurance, real estate	6.5	7.5	8.7	11.6	11.3	11.4
Services	13.7	16.5	19.0	28.5	24.6	25.8
Public sector	18.9	27.2	24.6	63.6	19.0	31.8
Federal	a	4.6	4.8	a	5.2	a
State	a	7.3	5.6	a	2.0	a
Local	a	15.2	14.2	a	11.8	a
Self-employed	36.5	21.8	16.3	-43.2	4.2	- 9.4
TOTAL	100	100	100	100	100	100

[a]Information not available.

Note: Includes all employed workers, 16 years old and over, except those working without pay.

Sources: Calculated from the 1960 and 1970 1/1000 Public Use Samples and the March 1980 Current Population Survey, U.S. Bureau of the Census.

Table 5

Employment by Occupational Categories and Education of Inexperienced Workers: 1960, 1970, 1980

	1960	1970	1980
Proportion with high-level jobs			
Less than high school	3.2	2.6	2.1
High school graduates	6.7	6.4	6.8
College 1-3 years	23.7	18.8	17.5
College 4 years	67.9	73.9	60.5
College 5+ years	74.7	80.5	76.0
Proportion of 4-year college graduates with:			
Professional jobs	66.3	70.0	47.5
Managerial jobs	4.8	5.9	14.4
Sales jobs	9.9	6.2	7.8
Clerical jobs	12.5	10.6	15.1
Other jobs	6.5	7.3	15.2

Note: Sample consists of all employed workers, 16 years old and over, except those working without pay, with 5 years of experience or less (Experience = Age - Years of schooling - 6).

Sources: Calculated from the 1960 and 1970 1/1000 Public Use Samples and the March 1980 Current Population Survey, U.S. Bureau of the Census.

Table 6

Employment by Sector and Industrial Group of Inexperienced College Graduates: 1960, 1970, 1980

	1960	1970	1980
Proportion employed in:			
Private sector	55.6	51.0	72.3
Manufacturing	18.2	12.4	14.4
Wholesale & retail trade	8.8	7.0	15.3
Services	18.4	20.1	25.3
Other industries	10.2	11.5	17.3
Public sector	40.8	47.0	25.0
Federal	-	4.1	5.8
State	-	10.4	5.2
Local	-	32.5	14.0
Self-employed	3.6	2.0	2.7
TOTAL	100	100	100
Proportion with high-level jobs:			
Private sector	53.7	60.0	55.1
Manufacturing	58.6	61.1	53.6
Wholesale & retail trade	24.1	31.8	41.3
Services	67.9	71.5	65.6
Other industries	46.8	54.5	53.5
Public sector	87.1	88.8	76.6
Federal	a	73.0	67.7
State	a	76.7	67.3
Local	a	94.6	83.8
Self-employed	81.8	86.7	52.4
TOTAL	67.9	73.9	60.5

[a]Information not available.

Note: Sample consists of all employed workers, 16 years old and over, except those working without pay, with 4 years of college and 5 years of experience or less (Experience = Age - Years of Schooling - 6).

Sources: Calculated from the 1960 and 1970 1/1000 Public Use Samples and the March 1980 Current Population Survey, U.S. Bureau of the Census.

Table 7

Total Annual Earnings by Education of Inexperienced Workers: 1960, 1970, 1980

	1960	1970	1980
Less than high school	1,034	1,340	2,359
High school	2,162	3,338	6,761
College 1-3 years	2,236	3,182	6,850
College 4 years	3,569	5,352	10,686
College 5+ years	4,487	7,004	12,940
Ratios (x 100)			
College 1-3 years/high school	105	95	101
College 4 years/college 1-3 years	157	168	156
College 5+ years/college 4 years	126	131	121
College 4 years/high school	165	160	158

Note: Sample consists of all workers, 16 years old and over, in the civilian labor force, except those working without pay, with 5 years of experience or less (Experience = Age - Education - 6).

Sources: Calculated from the 1960 and 1970 1/1000 Public Use Samples and the March 1980 Current Population Survey, U.S. Bureau of the Census.

Table 8

Relative Earnings[a] by Occupational Group, Sector, and Industrial Group of Inexperienced College Graduates: 1960, 1970, 1980

	1960	1970	1980
Occupational Groups			
Professional	166	164	163
Managerial	223	221	189
Sales	195	179	196
Clerical	133	117	126
Sector and Industrial Group			
Private sector	173	170	164
Manufacturing	221	217	178
Wholesale & retail trade	156	147	153
Services	132	144	153
Public sector	148	150	143
Federal	[b]	175	129
State	[b]	128	123
Local	[b]	152	157
TOTAL	165	160	158

[a]Ratio of mean, total annual earnings for 4-year college graduates in selected occupational groups, sectors, and industrial groups to earnings for all high school graduates (x 100).

[b]Information not available.

Note: Sample consists of all workers, 16 years old and over, in the civilian labor force, except those working without pay, with 5 years of experience or less (Experience = Age - Education - 6).

Sources: Calculated from the 1960 and 1970 1/1000 Public Use Samples and the March 1980 Current Population Survey, U.S. Bureau of the Census.

Table 9

Employment by Occupational Categories and Relative Earnings[a] of Inexperienced White Male and Female College Graduates: 1960, 1970, 1980

	1960	1970	1980
White males			
Proportion employed in:			
High-level jobs	65.5	69.9	62.4
Professional jobs	56.2	59.4	42.7
Managerial jobs	8.7	10.4	18.1
Sales jobs	15.9	10.1	11.3
Clerical jobs	8.4	7.5	8.0
Other jobs	10.8	12.6	19.9
Relative earnings[a]	164	151	148
White females			
Proportion employed in:			
High-level jobs	71.7	78.6	60.1
Professional jobs	79.5	80.1	54.1
Managerial jobs	0.0	2.1	10.3
Sales jobs	2.1	2.8	5.2
Clerical jobs	18.0	12.8	20.3
Other jobs	0.4	2.2	10.1
Relative earnings[a]	151	162	166

[a]Ratio of mean total annual earnings for 4-year college graduates to earnings for high school graduates (x 100).

Note: Sample consists of all workers, 16 years old and over, in the civilian labor force, except those working without pay, with 5 years of experience or less (Experience = Age - Education - 6).

Sources: Calculated from the 1960 and 1970 1/1000 Public Use Samples and the March 1980 Current Population Survey, U.S. Bureau of the Census.

Table 10

Occupational Group and Relative Income of College Graduates, by Race and Sex: 1960, 1970, 1980[a]

	White			Black		
	1960	1970	1980	1960	1970	1980
Males						
Occupational group						
Professional	56.9	59.1	51.6	60.3	60.9	49.4
Teaching	8.5	9.8	d	18.3	21.7	d
Manager	18.1	19.9	24.5	6.7	12.7	23.3
Sales	8.6	8.6	8.7	2.5	3.4	11.8
Clerical	4.5	4.7	4.5	9.3	8.1	5.6
Other	11.0	6.9	10.7	2.9	14.9	9.9
TOTAL	100	100	100	100	100	100
Relative income - b	141	144	142	130	139	139
- c	100	100	100	62	69	71
Females						
Occupational group						
Professional	74.6	76.8	64.5	77.6	81.0	67.5
Teaching	44.7	46.6	d	54.9	57.1	d
Health	5.1	12.4	d	4.3	8.8	d
Manager	3.7	4.8	9.7	1.5	3.7	8.8
Sales	2.1	2.5	4.1	.67	.88	3.8
Clerical	12.6	12.5	15.5	9.1	9.5	13.5
Other	7.0	3.4	6.2	11.1	4.9	6.4
TOTAL	100	100	100	100	100	100
Relative income - b	168	176	187	217	207	201
- c	48	46	46	48	54	58

[a]Employment data for 1960, 1970, and 1979; income data for 1959, 1969, and 1980.

[b]Ratio (x100) of median incomes for college graduates to high school graduates, within race and sex groups.

[c]Ratio (x100) of median incomes for college graduates within race and sex groups to white male college graduates.

[d]Information not available.

Note: Occupational level for employed college graduates (4 or more years), 16 years old and over. Relative income for persons 25 years old and over.

Sources: Occupation - U.S. Bureau of the Census (1963, Tables 9 and 10; 1973, Tables 8 and 9), U.S. Bureau of Labor Statistics (1981, Table K). Earnings - U.S. Bureau of the Census (1964, Table 223), U.S. Bureau of the Census, Current Population Reports, Series P-60, No. 75, Table 51, and No. 132, Table 51.

Table 11

Actual and Projected College Graduates[a] by Age Group: 1960, 1970, 1980, 1990

	Actual			Projected	
	1960	1970	1980	1980	1990
Persons 25 years old or older	10.2	13.9	21.8	18.5	23.8
Men				20.4	25.5
Women				15.3	21.0
Persons 25-34 years of age	13.4	17.7	26.5	24.1	29.7
Men				25.0	29.5
Women				22.6	30.1

[a]Proportion of civilian labor force with 4 or more years of college

Sources: Actual figures - calculated from the 1960 and 1970 1/1000 Public Use Samples and the March 1980 Current Population Survey, U.S. Bureau of the Census. Projected figures from Johnston (1973).

Table 12

Actual and Projected Employment and Employment Growth by Occupational Group: 1978 and 1990

	Employment (millions of workers) 1978	1990	Employment Growth (percentage distribution) 1978-90
Occupational group			
Professional	15,570	20,038	20.3
Managerial	8,802	10,484	7.7
Sales	6,443	7,989	7.0
Clerical	17,820	22,219	20.0
Crafts	11,679	14,366	12.2
Operatives	14,205	16,399	10.0
Laborers	5,902	6,955	4.8
Farm workers	2,775	2,193	- 2.6
Service	14,414	18,946	20.7
Occupational levels[a]			
High	25,268	31,882	30.1
Middle	54,359	66,012	53.0
Low	17,983	21,696	16.9
TOTAL	97,610	119,590	100

[a]Projected employment by detailed occupations grouped into occupational levels. See text for detailed explanation.

Source: Carey (1981).